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(54) **Dose control for use in an ion implanter**

(57) Electrical charge neutralization effects are known to be factors that affect the dose or concentrations of beam treatment by high current implanters (11). Raising beam energies to 1 MeV and beyond requires an understanding of the effects of both charge stripping and charge neutralization as well as a numerically efficient model compensating for these effects. Charge stripping generates ions of a higher charge state and may cause the measured electronic current from a Faraday cup to overestimate the true particle current. The invention implements an analysis based on the concept of an effective charge state for an ion beam (19) and results in a more general interpretation that covers both the charge stripping effect as well as ion neutralization. Dose control using the disclosed techniques requires two adjustable parameters: an apparent cross section of interaction between the beam and particles in the beam path and the ratio of the final steady charge state to the initial charge state.

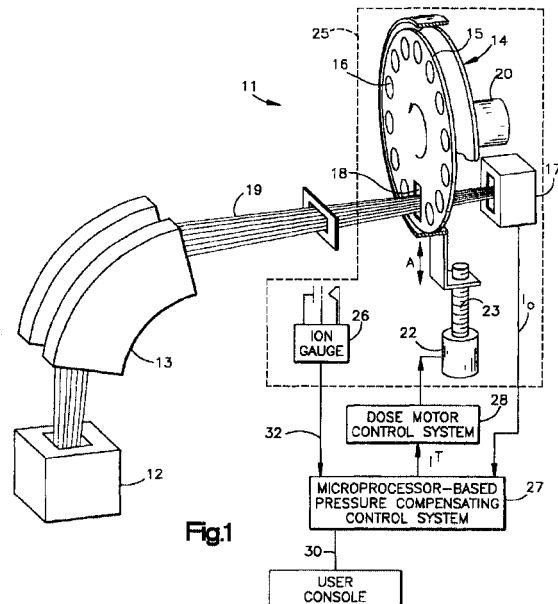


Fig.1



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EUROPEAN SEARCH REPORT

Application Number
EP 98 30 0195

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H01J
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		22 February 2001	Oestreich, S
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 98 30 0195

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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22-02-2001

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82